Publications Committee

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UNIVERSITY OF TEXAS.

CIRCULAR NO. 8.]

AUSTIN, TEXAS, August 27, 1888.

SCHOOL OF GEOLOGY.

PLAN OF INSTRUCTION.

The instruction in this School will be for two distinct classes of students: (1) Those who desire a general knowledge of Geology as an essential part of a liberal education. (2) Those who wish to become practical geological investigators and teachers. The future development of our State depends upon the training of both classes of students, and every effort will be made to create a proper appreciation of the problems to be solved. Students will be given practical problems in field, laboratory, and bibliographic methods, and advanced students aided in publishing the results of their investigations. This will be done in accordance with a system whereby it is hoped that the fundamental geologic features of Texas will be recorded and the foundations for a progressive scientific knowledge thereof begun.

Facilities at the University for Geologic Study.—Austin is most favorably situated for field study of Geology. The city is within easy reach of a most compact and comprehensive geologic section, which includes nearly every horizon from the oldest rocks of Mason and Llano counties on the west, to the marine formations now beautifully seen in operation along our coast. The State of Texas affords topographic, stratigraphic, lithologic, and paleontologic illustrations of nearly all the geologic phenomena of North America.

Austin is also situated upon the contact of two great Mesozoic formations, while in every direction there is an abundance of topographic forms illustrating the laws of fluviatile, atmospheric, and orographic modifications of the surface.

The study of these geologic features will be greatly facilitated by the accurate topographic map of this region which the United States Geological Survey has made. Over 4000 square miles are covered by the topographic sheets.

The climate is such as to facilitate out-door study of Geology throughout the year.

In addition to the natural advantages of Austin for practical field work, the State of Texas has recently made liberal appropriations for a geological survey and museum, and provided suitable quarters in the new State capitol building. This organization must give impetus and encouragement to geological study throughout the State, and the University hopes to receive the benefit of the scientific spirit which the State's corps of workers will necessarily bring to Austin.

The United States Geological Survey has promised, through the director, to aid the Geological School of the University in its original investigations.

The University laboratories afford ample facilities for all kind of geologic investigation.

Steps have already been taken towards a geologic library and arrangements made with the leading museums of the United States for a system of exchanges.

Every facility will be afforded special students and investigators, as it is desired to make the institution the centre of scientific research, and to establish reciprocal relations with leading scientific centres of the world.

Specialists, from home or abroad, desirous of carrying out any line of investigation in our State for publication, will be freely given all facilities in the power of the University. Post-graduate students from home and abroad will be especially welcomed.

(1) COURSE IN GENERAL GEOLOGY.

The general principles of Structural, Dynamic, Historical, and Economic Geology will be taught three hours per week throughout the University year by means of lectures, recitations, laboratory work, and field excursions. Instruction will be facilitated by practical illustrations in the field, when possible, and by charts, specimens, and literature in the laboratory. During the last term each student will be examined upon a representative collection of the most common rocks, minerals, and fossils, which he will be required to make. In some cases geologic maps will be made.

(2) ADVANCED AND SPECIAL COURSES.

In addition to the general course, provision will be made for continuing geologic studies in the laboratory and field, which will be considered the true places for higher geologic study. Students will be provided with special lines of investigation and encouraged in their pursuit. To this end the following subjects will be studied by experimental and practical work in field and laboratory:

Geologic Technology—All students will be taught the theory and use of simpler geologic methods, such as the determination of dip, strike, extent and relation of rock sheets; the art of collecting, labeling, and preservation of specimens, including talks upon museum methods. Topographic maps will be constructed, and the best examples of cartography critically examined. Hypsometric measurements will be studied with level, mercurial, and aneroid barometers. Meteorologic methods, including determination of humidity precipitation, temperature, and the measurement of velocity and volume of streams, will also be included as requisites of a geologic education. Special arrangements will be made with the Professor of Applied Mathematics for instruction in surface mensuration, including triangulation, transit and stactia, plane table measurements, and construction of contour maps.

Bibliographic Methods, including talks upon geologic literature, the making of subject bibliographies, history and extent of geologic publications, the making of card catalogues, etc., will be given to advanced classes.

Petrography, including methods of research and use of microscope, and the study of rocks in thin sections and by hand.

Mineralogy, descriptive and applied, including the study of individual mineral species, their composition, relation, association, together with blow-pipe analyses, etc., etc., (taught in the chemical laboratory) will be continued, and

the changes which they undergo and part they perform in geologic formations will be especially considered.

Paleontology.—The collection, study, and use of fossils as an aid to geologic investigation will be taught in the laboratory and field. The principles of biologic and stratigraphic paleontology, including the character, range, and interpretation of species and faunas will also be taught to students sufficiently acquainted with biology.*

Applied or Economic Geology.—In addition to the splendid opportunities already afforded in the Chemical Department of the University for economic instruction, including blow-piping, assaying, and metallurgy, etc., particular attention will be paid to the geologic origin and mode of occurrence of metallic and non-metallic minerals. Special attention, however, will be given to the peculiarly economic stratigraphic questions of geology, such as the origin and classification of agricultural soils, the requisite and qualifying stratigraphic conditions for water supply, and other questions of similar import.

Geologic Excursions.—In addition to field work in the immediate vicinity of Austin, it is intended to initiate as soon as practicable a series of class excursions by rail to the many important and diverse geologic features within a day's ride of Austin, including trips to (1) Galveston, for the purpose of studying the present operation of marine phenomena, including coast building and sedimentation; (2) the Archean and other earlier formations of Mason and Llano counties; (3) the disturbed mountainous areas of Northern Mexico and Western Texas; (4) the various carboniferous, cretaceous, and tertiary coal fields of the State, and many other points of interest, of which there is an unlimited variety. Camping expeditions will also be undertaken when possible. The cost of these excursions will be made very low.

Requirements for the Course.—Since Geology is essentially the study of the changes in the structure of the earth from physical, chemical, and biological causes, it is preferable that all students who take up the study of Geology should be prepared in the elementary principles of those subjects. Students should also be familiar with the elements of surveying and physical geography. No student will be debarred the privileges of the course, however, for want of preparation in any or all of these subjects, and the course will be open to all except such as the Faculty may see fit to exclude on account of other duties.

All students will be required to take the general course in the Junior or Senior year of the Course in Science. The studies of students who contemplate making the subject a specialty will be directed according to their individual requirements.

Reference Books.—Experience has shown that no single text-book can be used to advantage. Each student therefore will be supplied with a series of topics with references to the standard geological treatises of Dana, Le Conte, Geikie, Lyell, Prestivich, to the transactions of leading scientific societies, and to current scientific publications. By this method it is hoped the student will learn to use the literature of Geology. Each member of the class will be requested to provide himself with a Manual of Geology. It is not expected that

*Owing to the lack of biologic instruction in the University at present, the Professor in Geology will undertake the direction of a short course in the principles of that subject, including a few lectures, together with the study and direction by the members of the class, of a representative series of animal and vegetal types. The hours will be arranged hereafter. Text-book: Packard's Zoology.

the class as a whole will use the same manual, but some Dana's, others Le Conte's, others Geikie's, etc., as may be decided upon after consultation with the professor. Dana's Text-Book of Geology (1883) is recommended to general students who do not feel justified in purchasing the larger manuals. It should be remembered, however, that the instruction will be confined to no single text-book.

ROBT. T. HILL,
Professor.

Next session of the University of Texas begins Wednesday, September 26, 1888.

For Catalogue and other circulars, write to

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